Hydroxyethyl cellulose

Brand Name: Cellulosize
Drug Class: Microbicides

Drug Description

Hydroxyethyl cellulose (HEC) is a nonionic, water-soluble polymer that can thicken, suspend, bind, emulsify, form films, stabilize, disperse, retain water, and provide protective colloid action.[1]

HIV/AIDS-Related Uses

Hydroxyethyl cellulose is used as an inactive ingredient in the formulation of many vaginal microbicides. These microbicides are designed to prevent the transmission of sexually transmitted diseases, including HIV. Hydroxyethyl cellulose has been studied for use as a placebo gel in clinical trials of HIV microbicides. The use of hydroxyethyl cellulose gel as a universal placebo for HIV microbicide trials has been adopted, and the safety of this product is being evaluated further.[2]

Non-HIV/AIDS-Related Uses

Hydroxyethyl cellulose is used in numerous architectural and industrial coatings.[3]

Pharmacology

Hydroxyethyl cellulose is inactive against HIV.

Hydroxyethyl cellulose is being studied for its safety and use in clinical trials of microbicides. A proper base and placebo formulation is critical in the evaluation of safety and efficacy of active microbicide formulations. Efficacy of a microbicide would be underestimated if the placebo itself provided a degree of protection. A placebo with epithelial toxicity that increased susceptibility would cause an overestimation of microbicide efficacy. A useful placebo must be stable without altering the active drug, and it itself must be safe and well tolerated. A recent study demonstrated the safety, stability, inactivity, and efficacy of hydroxyethyl cellulose as a universal placebo for clinical trials of microbicides.[4]

Adverse Events/Toxicity

A recent study found hydroxyethyl cellulose was safe when used as a placebo or base in the clinical study of investigational microbicides.[5]

Clinical Trials

For information on clinical trials that involve Hydroxyethyl cellulose, visit the ClinicalTrials.gov web site at http://www.clinicaltrials.gov. In the Search box, enter: Hydroxyethyl cellulose AND HIV Infections.

Dosing Information

Mode of Delivery: Topical.[6]

Chemistry

CAS Name: Cellulose, 2-hydroxyethyl ether[7]

CAS Number: 9004-62-0[8]

Stability: Hydroxyethyl cellulose is sufficiently stable as a vaginal gel formulation.[9]

Solubility: Readily soluble in hot or cold water.[10]

Other Names

HEC[11]

Hydroxyethylcellulose[12]

Further Reading

Tien D, Schnaare RL, Kang F, Cohl G, McCormick TJ, Moench TR, Doncel G, Watson K, Buckheit RW, Lewis MG, Schwartz J, Douville K, Romano JW. In vitro and in vivo characterization of a potential universal placebo designed for use in vaginal microbicide clinical trials. AIDS Res Hum Retroviruses. 2005 Oct;21(10):845-53. PMID: 16225411

An Imaging Trial of the Distribution of Topical Gel in the Human Vagina: Assessment of Bare Spots.

Hydroxyethyl cellulose

AIDSinfo
A Service of the U.S. Department of Health and Human Services

Further Reading (cont.)

Available at:

Hydroxyethyl cellulose

Further Reading (cont.)

Imaging Trial of the Distribution of Topical Gel in the Human Vagina: Enhanced MRI Techniques to Increase Resolution. Available at:

Manufacturer Information

Hydroxyethyl cellulose
Union Carbide
A Subsidiary of The Dow Chemical Company
39 Old Ridgebury Road
Danbury, CT 06817-0001

Cellulosize
Union Carbide
A Subsidiary of The Dow Chemical Company
39 Old Ridgebury Road
Danbury, CT 06817-0001

For More Information

Contact your doctor or an AIDSinfo Health Information Specialist:

• Via Phone: 1-800-448-0440 Monday - Friday, 12:00 p.m. (Noon) - 5:00 p.m. ET

• Via Live Help: http://aidsinfo.nih.gov/live_help Monday - Friday, 12:00 p.m. (Noon) - 4:00 p.m. ET

Hydroxyethyl cellulose

References

1. Dow Chemical - Union Carbide Emulsion Systems Products: Cellulosize. Available at: http://www.dow.com/ucarlatex/prod/cello. Accessed 02/24/06.

2. Res Hum Retroviruses - 2005 Oct;21(10):845-53

3. Dow Chemical - Union Carbide Emulsion Systems Products: Cellulosize. Available at: http://www.dow.com/ucarlatex/prod/cello. Accessed 02/24/06.

4. Res Hum Retroviruses - 2005 Oct;21(10):845-53

5. Res Hum Retroviruses - 2005 Oct;21(10):845-53

6. Res Hum Retroviruses - 2005 Oct;21(10):845-53

7. ChemIDplus - Available at: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp. Accessed 02/24/06.

8. ChemIDplus - Available at: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp. Accessed 02/24/06.

9. Res Hum Retroviruses - 2005 Oct;21(10):845-53

10. Dow Chemical - Union Carbide Emulsion Systems Products: Cellulosize. Available at: http://www.dow.com/ucarlatex/prod/cello. Accessed 02/24/06.

11. Res Hum Retroviruses - 2005 Oct;21(10):845-53

12. Res Hum Retroviruses - 2005 Oct;21(10):845-53